INDUSTRIAL ENGINEERING

PLANT ENGINEERING IN INDUSTRY

A McGRAW-HILL PUBLICATION

Copyright 1931

INDEX TO VOLUME 88

January to December, 1930

	Page
January	1 to 66
February	67 to 114
March	115 to 170
April	171 to 224
May	225 to 278
June	279 to 332
July	333 to 396
August	397 to 444
September	445 to 494
October	495 to 544
November	545 to 594
December	595 to 644

A

ACCIDENT AND ACCIDENT PREVENTION

Court of law passes on National Electrical Code (ed) ... 94
Designing for safety in materials handling. R. H. Hucke ... *186
Desirable width of aisles and spacing between benches ... 97
Forms for periodic inspection to avoid fire hazards (Industrial Engineering's Data Sheets) ... 267
Gasoline made safe ... 259
Lighting the way to few accidents. R. E. Simpson ... *81
National standard safety code for building exists ... 13
Play safe when using oxygen ... 607
Policing electrically. R. K. Hyde ... *520
Put signs to work in the plant (ed) ... 242
Storing and distributing naptha safely. R. A. Althaus ... 310
"Substituting instructions for reprimands," discussion P. Justus ... 75
Talk it over with your friend the fire chief (ed) ... 288
To prevent fire loss—don't have the fire. W. A. Coulter ... *397
What is the safe temperature for spray booth lamps? A. H. Nuckolls ... 122

Accounting:
Keeping maintenance abreast of production. W. R. Wentzell ... *232
Maintenance by schedule and budget. C. H. Brechner ... *556

Air conditioning, see Ventilation.

Airplanes:
To prevent fire loss—don't have the fire. W. A. Coulter ... *397

American Gear Manufacturer Assn.—Elec. officers ... 264

American Institute of Electrical Engineers:
Convention ... 13

American Society of Mechanical Engineers:
Materials handling. Division meeting ... *184

Anvil—bench anvil made from piece of rail ... *417

Architects and illuminating engineers meet (ed) ... 467

Aviation:
Let's mark some roofs for our birdmen (ed) ... 555

Awards:
Lamme medal awarded to R. E. Hellmund ... 127
M. E. Cooley receives Washington award for 1930 ... 132
Montefiiore prize award announced ... 151

B

BEARINGS

Choosing and using them for power transmission. Wm. Staniar ... *145
Double ball bearings on line shafting in weave room ... *413
Graphite used to improve operation. H. G. Gergens ... 304
Lubrication of ball and roller bearings (Industrial Engineering's Data Sheets) 331
New bearings for old. W. B. Moore ... *598

BELTS

Avoiding sagging of belt on vertical drives ... 133, 426
Bogies for belting buyers. J. B. Toomey 617
Is there a good belt man in your organization? (ed) ... 182
Limiting factors for crossed-belt drives ... 97
Machine-made belting ... *478
Measuring belt tension ... 134
Safety bar to prevent belt from running off pulley. T. C. Witherspoon ... *148
V-belt drives—their application and selection. W. H. Stephens ... *445
Why do these belts slip? ... 623
World's worst belt ... 231

Belts, see also Drives and Power transmission.

Bonus, see Labor.

BOOK REVIEWS

American Standards refrigerator safety code ... 633
Applied mechanics ... 290
Appraisers and assessors manual ... 633
Arithmetic of electricity ... 265
Direct currents ... 265
Electric wiring ... 265
Electricity for beginners ... 416
Electricity—what it is and how it acts ... 13
Engineering kinematics ... 416
Engineering mechanics ... 266
Electrical system handbook ... 265
Forty years with General Electric ... 265
Fundamental theory of electrical engineering ... 473
Henley's twentieth century book of recipes, formulas, and processes ... 290
High-voltage oil circuit breakers ... 416
Industrial electricity and wiring ... 265
Life expectancy of physical property ... 416
Materials handling equipment ... 13
Materials of engineering construction ... 266
Mathematics for electricians ... 473
Mechanical engineer's handbook ... 416
NELA proceedings 1930 ... 633
Nema motor and generator standards ... 633
New building estimator's handbook ... 416
Storage batteries ... 266
Structural aluminum handbook ... 473
Techno-dictionary, German, English, Italian ... 633
Underwriters 1930 standard regulations ... 633
Universal electric motors ... 290

Bolts:
Method of anchoring bedplatebolts in concrete floors. R. M. Thomas ... *417

Bottles—production improved by machine. *464

Brakes:
Heating of coil lamp in magnetic brake 97

Budgeting. J. L. Kirsch ... 164
Maintenance by schedule and budget. C. H. Brechner ... *556
Maybe you can buy replacement parts cheaper (ed) ... 603

C

Cables:
Calculating drum cables. A. A. Cravens. *303
How we are organized to service hoist cables. W. E. Rasmussen ... *306
What causes heating of these cables? ... 426

Cement:
Botfield Refractories Co. develops a chromite cement ... 106
Laying new cement surface on old foundation ... 99

Chains:
Chain length determination ... 505
Determining safe loads for ropes, cables and chains. H. C. Charles ... 130

Chicago Lighting Institute—opens ... *259

Cleaning, see Plant housekeeping.

Clutches, see Power transmission.

Commutator:
Commutator assembly under unfavorable conditions. E. J. Morrissey ... *625
Mechanical causes of slip-ring troubles. S. S. Wolff ... *239
Trouble with mica V-ring ... 135

Commutator, see also Electricity.

Concrete:
Method of figuring materials for a job. H. C. Charles ... 144

Condensation:
Preventing condensation forming on ceilings ... 80

Conduits—rubber hose used instead ... 426

Control boards, see Electricity.

CONVEYING AND CONVEYORS

Automobile body assembly conveyor has variable speed transmission ... *408
How can surge be taken out of conveyor chains? ... 97
Plating conveyor in plant ... *406
Scrap handled by pneumatic conveyor ... *404

Conveying and conveyors, see also Materials handling.

Cooper Hewitt Electric Co.—changes name ... 62

Costs:
How control non-productive costs? H. W. Benton ... 569
We know our maintenance costs and here's why. A. G. Wynkoop ... *619

Couplings:
Flexible couplings. Wm. Staniar ... *100

CRANES

Crane inspection report (Industrial Engineering's Data Sheets) ... 114
Discussion of types of motors for cranes and elevators. H. H. Vernon ... *76
Electric traveling crane ... *461
Emergency use of porcelain tubes as crane trolley wire supports ... *123
Hook that increases safety in handling loads. G. A. Luers ... *190
Limit switch on cranes ... *531
Low crane maintenance, continuous operation—the result of triple inspection. W. D. Bristow ... *419
Two-ton, single-beam electric crane ... *407
Weights provide safety for floor-controlled crane. C. A. Peterson ... *417

Cranes, see also Materials handling.

D

Dealers, see Merchandising.

Detector, ground, for three-phase system. 133

Distributors, see Merchandising.

Drafting:
Scale for unscalable drawings. Peter Hagen ... 80

Drives, see Power transmission.

Dust elimination, see Ventilation.

E

ELECTRICITY

Built-in motor protection. G. R. Anderson ... *545
Checking developed winding diagrams. A. C. Row ... *260
Control boards for industrial service. B. J. Auburn ... *566
Commutator assembly under unfavorable conditions. E. J. Morrissey ... *625
Determining resistance and temperature rise of heavy conductors. E. R. Witzel ... 305
Electrical distribution at Point Breeze. Hornberger & Halliday ... *526
Electrical maintenance engineer — plant physician. R. H. Rogers ... 428
Electron tube control of motor speed (ed) ... 555
Feed control in bulk handling. G. R. Best ... *595
High voltage to ground from underground transformers ... 506
Improvised gang-coil winding head saves winding time. J. P. Kincaid ... *257
In one plant—64 applications of electrical heat. W. S. Scott ... *413, 449
Inadequate wiring boosts light bills. R. A. Palmer ... *499
Insulating materials used in winding and banding rotors. A. C. Roe ... *581
Mechanical causes of slip-ring troubles. S. S. Wolff ... *239
Metering three-phase four-wire secondary systems ... *507
Modernization begins in the substation. H. E. Stafford ... *577
Modernizing old motor winding. A. C. Roe ... *92
1929 electrical developments. J. G. Berger ... *2
Plant voltages going up (ed) ... 524
Policing electrically. R. K. Hyde ... *520
Portable connection box provides extra service outlets ... *616
Properly banded rotors. A. C. Roe ... *476

*Indicates illustrated articles; ed, editorial

INDUSTRIAL ENGINEERING

PLANT ENGINEERING IN INDUSTRY

A McGRAW-HILL PUBLICATION

Copyright 1931

INDEX TO VOLUME 88

January to December, 1930

	Page
January	1 to 66
February	67 to 114
March	115 to 170
April	171 to 224
May	225 to 278
June	279 to 332
July	333 to 396
August	397 to 444
September	445 to 494
October	495 to 544
November	545 to 594
December	595 to 644

A

ACCIDENT AND ACCIDENT PREVENTION

Court of law passes on National Electrical Code (ed) ... 94
Designing for safety in materials handling. R. H. Hucke ... *186
Desirable width of aisles and spacing between benches ... 97
Forms for periodic inspection to avoid fire hazards (Industrial Engineering's Data Sheets) ... 267
Gasoline made safe ... 259
Lighting the way to few accidents. R. E. Simpson ... *81
National standard safety code for building exists ... 13
Play safe when using oxygen ... 607
Policing electrically. R. K. Hyde ... *520
Put signs to work in the plant (ed) ... 242
Storing and distributing naptha safely. R. A. Althaus ... 310
"Substituting instructions for reprimands," discussion P. Justus ... 75
Talk it over with your friend the fire chief (ed) ... 288
To prevent fire loss—don't have the fire. W. A. Coulter ... *397
What is the safe temperature for spray booth lamps? A. H. Nuckolls ... 122

Accounting:
Keeping maintenance abreast of production. W. R. Wentzell ... *232
Maintenance by schedule and budget. C. H. Brechner ... *556

Air conditioning, see Ventilation.

Airplanes:
To prevent fire loss—don't have the fire. W. A. Coulter ... *397

American Gear Manufacturer Assn.—Elec. officers ... 264

American Institute of Electrical Engineers:
Convention ... 13

American Society of Mechanical Engineers:
Materials handling. Division meeting ... *184

Anvil—bench anvil made from piece of rail ... *417

Architects and illuminating engineers meet (ed) ... 467

Aviation:
Let's mark some roofs for our birdmen (ed) ... 555

Awards:
Lamme medal awarded to R. E. Hellmund ... 127
M. E. Cooley receives Washington award for 1930 ... 132
Montefiiore prize award announced ... 151

B

BEARINGS

Choosing and using them for power transmission. Wm. Staniar ... *145
Double ball bearings on line shafting in weave room ... *413
Graphite used to improve operation. H. G. Gergens ... 304
Lubrication of ball and roller bearings (Industrial Engineering's Data Sheets) 331
New bearings for old. W. B. Moore ... *598

BELTS

Avoiding sagging of belt on vertical drives ... 133, 426
Bogies for belting buyers. J. B. Toomey 617
Is there a good belt man in your organization? (ed) ... 182
Limiting factors for crossed-belt drives ... 97
Machine-made belting ... *478
Measuring belt tension ... 134
Safety bar to prevent belt from running off pulley. T. C. Witherspoon ... *148
V-belt drives—their application and selection. W. H. Stephens ... *445
Why do these belts slip? ... 623
World's worst belt ... 231

Belts, see also Drives and Power transmission.

Bonus, see Labor.

BOOK REVIEWS

American Standards refrigerator safety code ... 633
Applied mechanics ... 290
Appraisers and assessors manual ... 633
Arithmetic of electricity ... 265
Direct currents ... 265
Electric wiring ... 265
Electricity for beginners ... 416
Electricity—what it is and how it acts ... 13
Engineering kinematics ... 416
Engineering mechanics ... 266
Electrical system handbook ... 265
Forty years with General Electric ... 265
Fundamental theory of electrical engineering ... 473
Henley's twentieth century book of recipes, formulas, and processes ... 290
High-voltage oil circuit breakers ... 416
Industrial electricity and wiring ... 265
Life expectancy of physical property ... 416
Materials handling equipment ... 13
Materials of engineering construction ... 266
Mathematics for electricians ... 473
Mechanical engineer's handbook ... 416
NELA proceedings 1930 ... 633
Nema motor and generator standards ... 633
New building estimator's handbook ... 416
Storage batteries ... 266
Structural aluminum handbook ... 473
Techno-dictionary, German, English, Italian ... 633
Underwriters 1930 standard regulations ... 633
Universal electric motors ... 290

Bolts:
Method of anchoring bedplatebolts in concrete floors. R. M. Thomas ... *417

Bottles—production improved by machine. *464

Brakes:
Heating of coil lamp in magnetic brake 97

Budgeting. J. L. Kirsch ... 164
Maintenance by schedule and budget. C. H. Brechner ... *556
Maybe you can buy replacement parts cheaper (ed) ... 603

C

Cables:
Calculating drum cables. A. A. Cravens. *303
How we are organized to service hoist cables. W. E. Rasmussen ... *306
What causes heating of these cables? ... 426

Cement:
Botfield Refractories Co. develops a chromite cement ... 106
Laying new cement surface on old foundation ... 99

Chains:
Chain length determination ... 505
Determining safe loads for ropes, cables and chains. H. C. Charles ... 130

Chicago Lighting Institute—opens ... *259

Cleaning, see Plant housekeeping.

Clutches, see Power transmission.

Commutator:
Commutator assembly under unfavorable conditions. E. J. Morrissey ... *625
Mechanical causes of slip-ring troubles. S. S. Wolff ... *239
Trouble with mica V-ring ... 135

Commutator, see also Electricity.

Concrete:
Method of figuring materials for a job. H. C. Charles ... 144

Condensation:
Preventing condensation forming on ceilings ... 80

Conduits—rubber hose used instead ... 426

Control boards, see Electricity.

CONVEYING AND CONVEYORS

Automobile body assembly conveyor has variable speed transmission ... *408
How can surge be taken out of conveyor chains? ... 97
Plating conveyor in plant ... *406
Scrap handled by pneumatic conveyor ... *404

Conveying and conveyors, see also Materials handling.

Cooper Hewitt Electric Co.—changes name ... 62

Costs:
How control non-productive costs? H. W. Benton ... 569
We know our maintenance costs and here's why. A. G. Wynkoop ... *619

Couplings:
Flexible couplings. Wm. Staniar ... *100

CRANES

Crane inspection report (Industrial Engineering's Data Sheets) ... 114
Discussion of types of motors for cranes and elevators. H. H. Vernon ... *76
Electric traveling crane ... *461
Emergency use of porcelain tubes as crane trolley wire supports ... *123
Hook that increases safety in handling loads. G. A. Luers ... *190
Limit switch on cranes ... *531
Low crane maintenance, continuous operation—the result of triple inspection. W. D. Bristow ... *419
Two-ton, single-beam electric crane ... *407
Weights provide safety for floor-controlled crane. C. A. Peterson ... *417

Cranes, see also Materials handling.

D

Dealers, see Merchandising.

Detector, ground, for three-phase system. 133

Distributors, see Merchandising.

Drafting:
Scale for unscalable drawings. Peter Hagen ... 80

Drives, see Power transmission.

Dust elimination, see Ventilation.

E

ELECTRICITY

Built-in motor protection. G. R. Anderson ... *545
Checking developed winding diagrams. A. C. Row ... *260
Control boards for industrial service. B. J. Auburn ... *566
Commutator assembly under unfavorable conditions. E. J. Morrissey ... *625
Determining resistance and temperature rise of heavy conductors. E. R. Witzel ... 305
Electrical distribution at Point Breeze. Hornberger & Halliday ... *526
Electrical maintenance engineer — plant physician. R. H. Rogers ... 428
Electron tube control of motor speed (ed) ... 555
Feed control in bulk handling. G. R. Best ... *595
High voltage to ground from underground transformers ... 506
Improvised gang-coil winding head saves winding time. J. P. Kincaid ... *257
In one plant—64 applications of electrical heat. W. S. Scott ... *413, 449
Inadequate wiring boosts light bills. R. A. Palmer ... *499
Insulating materials used in winding and banding rotors. A. C. Roe ... *581
Mechanical causes of slip-ring troubles. S. S. Wolff ... *239
Metering three-phase four-wire secondary systems ... *507
Modernization begins in the substation. H. E. Stafford ... *577
Modernizing old motor winding. A. C. Roe ... *92
1929 electrical developments. J. G. Berger ... *2
Plant voltages going up (ed) ... 524
Policing electrically. R. K. Hyde ... *520
Portable connection box provides extra service outlets ... *616
Properly banded rotors. A. C. Roe ... *476

*Indicates illustrated articles; ed, editorial

Engin. Lib.
Wahr

Standard insulator tests and ratings approved 614
Starters and motors. A. A. A. Rodriques *510
Trouble traced to mechanical defect. G. H. Emerson 303
Voltage changes in motors and generators. A. C. Roe 427
Voltage will not build up on generator.. 564
What will control be like tomorrow? (ed) 430
Will this machine have to be rewound? 98
Elevators:
Discussion of types of motors for cranes and elevators. H. H. Vernon..... *76
Inspection schedule for electric elevators 624
Power lift does away with back-breaking effort. J. C. Siegesmund *190
Elevators, see also Materials handling.
Employees, see Labor.
Enamel and enameling:
Reducing draft improved operation of ovens 148

EQUIPMENT

Airbrush—Paasche multi-color *432
Air cleaner—Hammond *269
Air conditioner—Parks-Cramer *211
Air-way electric appliance "Aeriet"..... *221
Ammeter—Westinghouse *218
Ammonia dissociator—General Electric.. *634
"Anoroc"—Simplex 586
Arrow receptacle 326
Audio frequency remote control equipment—General Electric *587
Babbitt pot—Trent electric *392
Bailey Selsyn-operated devices..... *153
Bases, Reliance — for motor-generator sets *275
Battery charger—Westinghouse "Rectox" *60
Bearings—Auburn end-thrust ball *437
Johnson self-lubricating bronze..... *105
SKF "Felt-seal" ball *482
Stephens-Adamson for conveyors..... *329
Sumet bronze-lined steel-backed..... 216
Westinghouse leakproof *317
Belt—Cincinnati Cincinnatus duoflex... 491
Dayton Roderwald "Link-Wedge".... 588
Goodyear "Emerald cord" *394
Schieren static-proof *394
Slip-Not—leather belt for short centers *107
Belt lacing—Armstrong-Bray flexible-steel *61
Belt sander and grinder—Porter..... *539
Belting—Graton & Knight..... 392
Bench legs and benches—Whitney..... *107
Bending machine—"Lidseen" Chicago hydraulic pipe *321
Bending tool—Allied "Heer" for pipes.. *315
Blast trap—Bishop & Babcock for unit heaters *277
Blow torch—Lenk alcohol *487
Blueprinting machine — Paragon-Revolute *274
Box-stacking—All-Steel *318
Brackets—Ohmite detachable mounting. 486
Brazing equipment—General Electric.... *540
Bronze—Sumet "Actinized" 275
Brushes—Speer Carbon 485
Bucket—Erie *490
Buffer—Hisey TexDrive *325
Buffing system—Hunt Quick-as-a-wink. *438
Bus fittings—General Electric *589
Bus supporters—Champion *540
Delta-Star *272
Busbar support—Champion *489
Cabinets—All-Steel storage *321
Cable—Bishop "Contact" 221
Cable grip—"Kellems junior" *394
Caliper—Brown & Sharpe micrometer.. *109
United Tool & Die dial 159
"Carey aluminite" 541
Chain—American conveyor *155
Link-Belt "Hyper" *327
Changeable felloe—Firestone 535
Chest—All-Steel tool 321
Baker-Case machinists' *320
Gerstner tool *323
Circuit breaker—Condit oil *276
Delta-Star *437
General Electric *484, *486
General Electric trip-free *319
Westinghouse *217
Westinghouse oil *434
Clamp—Brownie *325
Delta-Star hot line *319
General Electric live-line disconnecting *539
Trico "Klipiok" *393
Clock—Hamilton Sangamo 591
Clutches—Cutler-Hammer magnetic..... *640
Johnson improved "Super" *273
Pulvis *158
Coil forming machine — Armature air-operated *270
Comparator — Farrell-Birmingham gear tooth *538
Compounds "Timesaver" lapping..... 393
Compressor—Gardner-Denver single-stage. *111
Gardner-Denver *219
Ingersoll-Rand two-stage air *58
Lindsay portable direct-drive..... *65
Connectors—Matthews solderless service. *590
Modern Machine power plug *157
Ralco Cord *487
Contact—Delta-Star floating *482
Contactors—Cutler-Hammer *436
Cutler-Hammer "Twin break" magnetic *537
Industrial Controller reversing..... *486
Control—American dual for unit heaters. *154
Cutler-Hammer Automatic *586
Cutler-Hammer lifting magnet..... *317
General Electric crane and hoist..... *154
Conveyor—Mathews Roller *643
Conveyor carrier—Stephens-Adamson... *588
Conveyor chains—Transue & Williams.. *591
Conveyor safety stop—Kurth & Knapp.. *438
Countershaft—Production motorized.... *393
Coupling—Ajax flexible *441
Morse flexible *211
Poole Engineering flexible *61
Smith flexoid shaft *157
Couplings and connectors—Steel & Tubes 271
"Covule" Hitchcock 642
Crane—Clark "Clarktor" *634
Terminal *483
Crawler—Trackson, for Fordson tractors. *539
"Crowners" and "Lok-Crowner"—Rawplug for concealing screw heads *212
Cubicle—Westinghouse indoor *315
Cutouts—Westinghouse primary fuse.... *327
Cutter—DeWalt heavy-duty timber..... *154
Degreaser—Carrier Engineering "Cecolene" 59
"DeLux" Du Pont 541
Die heads—Borden *588
Diestock—Armstrong three-way *488
Borden "Beaver" *437, *637
Dipper doors — American "Meyer" reinforcement unit *538
Dipping tank—Dolph varnish *326
Distribution panels—Delta-Star *106
Square D safety *586
Drill—Chicago pneumatic *540
Guilbert "toggle bug" *437
Speedway heavy-duty electric *63
Whitman & Barnes *438
Drilling stand—Hisey-Wolf *111
Drive—Caldwell standardized elevator... *108
Worthington multi V *439
Drives for screw conveyors—Caldwell.. *212
"Durimit" floor surfacing material..... 215
Dynamotors and motor generators—Electric Specialty *590
Electric controller — Wright dynamic lowering *106
Electrode—Lincoln "Lightweld" 321
Lincoln "Stainweld A" 270
Westinghouse welding 488
Electrode holder—Northwestern Wachs.. *437
"Electrolene"—General Electric 316
Elevator machines—Warner *590
Elevator—Revolvator *538
"Eleveyor"—Mercury *325
Equipment review *16-57
Expansion bends—General Electric..... 156
Expansion joint—Yarnall-Waring *220
Fan cooler—Niagara *393
Farewell, useless equipment (ed)..... 524
Feeding device on automatic welding head—General Electric 60
Filter — Motor Improvements "Purolator" *274
Nuget automatic bypass-pressure oil.. *211
Finish conditioning equipment—Despatch. *640
Flashlight—Burgess revolving-head..... *432
Flexible shaft—United States..... *489
Floor liner—Nissly *317
Floor machine — Finnell scrubber-absorber *486
Floor-scrubbing and polishing machines—Finnell *441
Flooring materials—Blaw-Knox *270
Flush receptacle—Bryant duplex..... *642
Frequency converter—Reliance..... *273
Fuse—Champion self-insulated explosion. *481
Fuse puller—Matthews *277
Gage attachment—Brown & Sharpe.... *156
Gages—Brown remote-type transmitting pressure *210
Brown & Sharpe depth *152
Brown & Sharpe fillet and radius.... *482
Brown & Sharpe screw gage *217
Brown & Sharpe telescoping gage.... *107
Ellison air filter *319
Lufkin radius *438
Gage selectors—Brown & Sharpe 221
Gas detector—Mine safety *219
Gasket compound—National cork..... 220
Gasket cutting machine—Allen *436
Gear unit—Gears and forgings..... *586
Generator—Fusion "Carb-O-Flux" arc-welding *109
Harris acetylene *587
Oxweld and acetylene *482
Generator voltage—Columbia method for changing *432
Goodyear "Ray rubber" 60
Graphic instruments—Roller-Smith *269
Grinder—Hammond bench-type *434
Hisey-Wolf *590
Ideal commutator *439
Ingersoll-Rand pedestal *315
Madison-Kipp air *154
Madison-Kipp ball-bearing air..... *641
Production *433
Standard snagging *315
Van Dorn "Flex-Disc" *158
Wappat Red Streak *159
Grinder and buffer—Chicago *106
Hammers—Ingersoll-Rand chipping *108
Hanger—Westinghouse "Safechange" ... *276
Heater—American Foundry space *485
Air-Way Aeriet *541
Automatic turbine-driven unit *641
Bishop & Babcock "Massachusetts".. *271
Bishop & Babcock "Massachusetts".. *325
Buffalo Forge gas-fired *591
Buffalo Forge twin unit *439
Buffalo unit *638
Buffalo "Wetboy" unit heater..... *65
Cochrane deaerating *435
Grid unit *276
Multicell *216
Reznor gas-fired multiple-unit..... *324
U. S. radiator unit *159
Westinghouse "Adapt-O-Matic" water. *155
Wolverine cabinet unit *639
Wolverine unit *153
Heating elements—Trent *635
Heating method—Skinner Airblanket".. *433
Heating system—Hymes electric..... *273
Lee *210
Hoist—Chisholm-Moore—"Cyclone" *215
Gardner-Denver single-drum air or steam *107
Ingersoll-Rand "Utility" air *317
Matthews "Pullift" *326
Milwaukee *395
Robbins & Myers "Bantam"..... *324
Trackson *643
How shall equipment be purchased?.... 84, 140, 141, 194, 195, 237, 298
Inclosure — Condit gas tight for motor starters *59
Inclosures, dust-tight for controllers... *485
Industrial washer—Hobart *109
Instruments—General Electric *219
Insulating and soundproofing material—Inter. Products "Veldur" 270
Insulator—Champion switch shaft..... *490
Westinghouse outdoor apparatus..... *108
Insulator supports — Fullman "Bull Dog" *484
Joint—Delta-Star combination support and expansion *157
Kerosene burner — St. Paul welding burner *152
Lamp guard—McFill *490
"Lamplok" multiple *436
Lathe—Hammond electric polishing and buffing *107
Schauer *218
Lever for oil circuit breakers—General Electric *535
Lightning arrester *329
Liquid proportioner—Paige & Jones..... 440
Loader—Link-Belt *213
Stephens-Adamson box car *276
Locking ring—Arrow 319
Locking ring and cap assembly—Arrow. 489
Lockwashers—Reliance stainless steel... 323
Locomotives—Brookville Ford-powered.. *440
Lubricant—General Electric motor..... 642
Houghton gear 639
Lubricating equipment — "Trabon" progressive system *484
Lubrication system—Lubrication Devices Farval "Dualine" *395
Lubricator—Borne Scrymser *535
Nathan mechanical *481
Turner pressure *591
Manifolds—Oweld oxygen and acetylene. *441
Manometer—Meriam "High visibility".. *639
Meriam "Jumbo" *62
Meriam mercury *220
Meriam well-type *326
Marker—Westinghouse guide and obstruction *590
Mask—Bullard-Davis rubber face..... 216
Megohmer—Sticht "Paragon" *217
Melting tank—Swoboda 218
Meter—Sangamo Kva. demand *585
Westinghouse indicating frequency.... *159
Weston heat flow *59
Mill drive—Gears and forgings two-speed *62
Mossay cooling for large motors..... *537
Motor—Allis "Explosion-proof" *319
Baldor *217
Baldor ball-bearing *156
Bodine, with wool-packed bearings. *635
Century totally-inclosed *153
Cleveland semi-inclosed *322
Electro Dynamic "Weld-Built" *392
General Electric for hazardous conditions *636
Lincoln totally inclosed *638
Louis Allis totally inclosed..... *541
Reliance explosion-proof *587
Reliance for runout tables *439
U. S. "Doublenclosed" *154
Westinghouse clutch-type *487
Westinghouse induction *156
Mechanism—General Electric for disconnecting switches *318
Motor starter—Cutler-Hammer *326
Motor watchman—Westinghouse *537
Nibbling machine—Campbell *540
Outlet box—All-steel *485
Outlets—Hubbell *329
Oven heater—Maehler industrial *483
Ovens—Despatch, indirect gas-fired.... *275
Freas thermo—Electric *272
Paint—"Ultra Fuson" aluminum..... 393
Paint-spraying apparatus—Weil 637
Panelboard—Bull Dog *541
Trumbull no-fuse *158
Panelboard and cabinet—Frank Adam.. *536
Panels for steel mills—General Electric.. *153
Pedestals for disconnecting switches—Champion *318
Permanency versus obsolescence (ed)... 466
Photo-electric cells—G. M. 393, 541
Photo-electric cell and amplifier unit—Westinghouse *213
Pipe and tube bending machines—American *64
Plug—General Electric glass-top..... *63
Power unit—Westinghouse portable.... *491

*Indicates illustrated articles; ed, editorial

"Promal" metal for chains *485
Puller—Armstrong-Bray gear and wheel. *642
Pulley—Westinghouse micarta *270
Pulverizer—Fuller Lehigh *587
Pump—Durion self-priming centrifugal.. 63
Globe Products "Rotapiston" *435
Hill-McCanna "Anderson" grease *323
Ingersoll-Rand *315
Paige & Jones hydro-acid *392
Pennsylvania centrifugal *155
Wintroath deep well turbine *435
Punch—Nischan draw *484
Punches and cutters—Greenlee "Knock-out" *60
Push plate for tractor—Caterpillar *320
Pushbutton unit—Westinghouse *64
Putty—Fusion "Weldite" fillet 440
Radial arm—Portable, for electric hand saw *272
Radiator valve—Marsh *488
Reamer—Oster-Williams *487
Reamer and threader—Oster-Williams.. *394
Recording instruments—Westinghouse... *637
Reels—Truscon steel *636
Regulator—Bastian-Blessing "Red Star" for welding *322
Cutler-Hammer pressure *277
Harris multi-stage for gas cylinders. *65
Marshall automatic voltage 58
Melton power factor control and voltage *637
Oweld oxygen *538
Weldit *272
Relay—G-M Laboratories sensitive..... *328
General Electric photo-electric..... *277
Resistance units—Ohmite 485
Resistors—General Electric *439
Reversing control—General Electric.... *536
Rheostats—Westinghouse speed-regulating *316
Ring oiler—Morse automatic for chain drives *634
Roofing—Inland Steel 634
Rotoscope—Ashdown *591
Sander—Nichols-Lintern electro-magnetic. *218
Saw—Beebe "Little cut-up" *635
De Walt electric hand *327
Porter-Cable-Hutchinson *586
Speedway portable electric *61
Stanley-Crowe safety *395
Van Dorn portable electric *269
Scale—Standard computing dormant.... 215
Screens — Ludlow-Saylor "Arch-Crimp" woven wire *324
Ludlow-Saylor woven-wire 487
Stephens-Adamson vibrator screen.... *64
Screw driver—Moline "Shok-pruf"..... *487
Screwnail—Parker-Kalon *64
Shock absorber for pressure gages — Meriam *272
Shovel—Clark "Clarktor" *585
Shovel truck—Terminal *535
Show fixtures—Bradley *587
Shut-off — Bastian-Blessing for welding gases *108
Signal system—Nichols-Lintern Crane .. *159
Snow plow—Clark "Clarktor" *589
Soldering-iron—Bellvue electric *641
Electric *155
Speed reducer—Cullman improved..... *329
Foote "Titan" *322
Gears and Forgings three speed..... *64
James spiral bevel gear *214
Production motorized *639
Universal gear *216
Westinghouse-Nuttall *638
Sprayer—Paasche *438
Spraying machine—General Pneumatic. *487
Stacker—Lewis-Shepard *643
Stands—Armstrong pressed-steel *536
Starter—Condit, air motor *214
Condit with motor circuit switches... *110
Cutler-Hammer resistor *490
Electric Controller full-voltage..... *433
Industrial Controller combination.... *540
Industrial Controller two-pole..... *483
Monitor Thermaload *638
Washburn Shops "Lombard" *434
Starters and speed regulators—Westinghouse 640
Stock drives—Diamond Chain 437
Stop watch and speed register—Montgomery *215
Striper—Paasche Hudson *321
Paasche type universal striper..... 58
Switch house—Delta-Star *276
Switch pedestal—Trumbull *488
Switches—Allen-Bradley *213
Allen-Bradley automatic float..... *635
Allen-Bradley pressure *220
Arrow flush tumbler 639
Automatic reclosing "klamp-tite" knife switch *58
Bryant flush tumbler *63
Champion disconnecting..... *319, *589
Champion transfer *434
Champion transfer disconnecting..... *273
Colt Noark "Quadbreak" *105
Cutler-Hammer limit *318
Cutler-Hammer starting 589
Cutler-Hammer three-position pilot... 491
Delta-Star *588
Delta-Star auxiliary *327
Delta-Star disconnecting.... *62, *153, *216, *274, *489, *490
Delta-Star disconnecting and by-pass.. *318
Delta-Star gang-operated *434
Delta-Star multi-pole disconnecting... *63
Delta-Star operated disconnecting..... *158
Delta-Star transfer *491
Delta-Star ventilated-stud disconnect.. *433
Electric Controller master *328
General Electric automatic time *321
General Electric emergency stop..... *152
General Electric, equipment for emergency engine-driven generator..... *215
General Electric indoor disconnecting. *436
General Electric latched *637
General Electric magnetic 643
General Electric magnetic reversing.. *435
Hart & Hegeman starting *640
Meter Devices meter and relay test... *323
Monitor "Ironclad" push button..... *641
Sangamo electrically wound time.... *483
Trumbull redesigned type C..... *61
Trumbull tumbler *110
Westinghouse control *157
Westinghouse line-starter and safety.. *214
Westinghouse safety *323
Westinghouse weatherproof safety.... *324
Switchgear mechanisms—General Electric solenoid-operating *590
Tachometer—Jones industrial *328
Zernickow *212
Template—American "Maco" *322
"Tannergas" 440
Temple gun penetrates by percussion... *530
Terminator—Delta-Star cable *60
Delta-Star cementless *485
Delta-Star three conductor..... *638, *643
"Test-O-Lite" Brach *221
Tester—Roller-Smith dry cell *325
Thermometer—Moto Meter recording.... *111
Thermostat—American Mercoid..... *329
General Electric *320
For melting pots—General Electric... *491
Threader—Jarecki pipe *489
Oster-Williams portable power..... *320
Oster-Williams three-way..... *432
Threading machine—Axelson *488
For pipes—Oster-Williams *489
"Thyrite" lightning arrester unit..... *110
Tile—Johns Manville asbestos 220
Timer—Monitor work-cycle *636
Timestarters—Westinghouse *585
Time switch—Sangamo 538
Tire—Carter quick-change for bandsaws. *432
Tongs—Williams chain *157
Tool—Borden "Beaver" grooving tool... *61
Torch—Torchweld cutting *589
Track shoe for Caterpillar tractor..... *316
Tractor—Allis-Chalmers narrow-tread... *394
Clark *588
Hebard "Shop Mule" *316
Mercury *324
Whitehead & Kales "Industrial Tug".. *110
Transformers—General Electric instrument current *591
Transmission—Lewellen variable-speed.. *394
Link-Belt "P. I. V." *584
Trap—Sarco improved bellows-type *436
"Tricosal" 539
Trimmer—HyKon knockout *395
Trolley—Louden motor-driven *325
Robbins & Myers "Ace" *275
Truck rim—Firestone *636
Trucks—Barrett-Cravens *489
Crescent power lift *491
Economy telescopic lift *642
Elwell-Parker lift *584
Lakewood low-lift *63
Lewis-Shepard standards and special floor 585
Wright-Hibbard telescopic tier-lift.... *537
Tube relay—Hart Mercury *641
Twinveyor—Clark Tructractor *440
Undercutter—Martindale lathe type.... *111
Undercutting machine—Hullhorst lathe type *156
Unilets—Appleton no-thread malleable.. *271
Union—Walworth forged-steel *65
Vacuum cleaner—Breuer portable..... *274
Vacuum cleaner and blower — United States *328
Valve trap — Strong, Carlisle & Hammond *486
Valves—Automatic Primer air relief.... *273
Barber-Colman unit heater *392
Durion *214
Hunt "Quick-as-wink" *327
Jenkins bronze *589
Sylphon radiator *219
Williams noiseless check *109
Viscosimeter—American automatic..... *395
Vise—Cincinnati, plain and swivel..... *219
Volt-ammeter—Roller-Smith *588
Weld-testing machine—Oxweld *640
Welder—Hobart "constant arc" electric. *59
Lincoln arc *439
Lincoln gas-engine driven *481
Westinghouse "Flex-Arc" *221
Wilson *220
Welding alloys—Westinghouse phos-copper 320
Welding blowpipe—Oxweld 217
Welding blowpipe accessories—Oxweld.. *538
Welding fluxed rod—Fusion 218
Welding rod—Oxweld 152
Oxweld aluminum 536
Stooky "Borod" for hard facings.... 111
Wheels—Tool steel brake *220
Who shall specify equipment?.. 515, 572, 610
Wires—General Electric colored code.... 155
Rockbestos magnet wire 59
Wire cloth—Newark stainless-steel 588
Wire stripper—Ideal pedestal-type..... *643
Wires and strands—Copperweld 325
Wrapping rolls—Buffalo *156
Wrench—Bonney forge wrench sets *62
Jefferson fuse 441
Keystone adjustable *323
Wrench that will not mar the work.... *531
Exhibitions—how the Iron and Steel Show can be bettered (ed) 389

F

Feed control in bulk handling. G. R. Best *595
Fire prevention (ed)..... 466
Fire protection, see Accidents and accident prevention.
Floors:
Acidproof floor 135
Steel-plate floor assembled by welding.. *471
Wanted—non-skid floors (ed) 94
What is a good floor cleaner?..... 99
Furnaces:
Electric furnaces with controllable atmospheres. C. L. Heisler, Jr..... *229
For heat treatment, see Heat treatment.

G

GENERATORS
Causes of unequal current division among brushes. W. E. Warner..... 1418
Cut and try method used in paralleling three generators. C. A. Peterson.... 257
Pilot generator, chain driven..... *461
Voltage changes in motors and generators. A. C. Roe..... 427
Voltage will not build up on generator 97
Voltage will not build upon generator. M. T. Lane, N. H. Mailhos..... 246
Generators, see also Electricity.
Glass:
Organized plant engineering. Vaksdal & Romig *495
What kind of glass for the plant? (ed).. 182
Your window glass. H. S. Jacoby.... *225

H

Heat treatment:
Electric furnaces with controllable atmospheres. C. L. Heisler..... *136
In one plant—64 applications of electric heat. W. S. Scott..... *413, *499
What proportion of oven area should be in explosion panels? 425
HEATERS AND HEATING
Electric heat—discussion. F. M. Reiter 96
Method of heating oil pipe line. C. O. von Dannenberg, F. W. Paffen..... 200
Modern equipment at work (Picture feature) *377
Unit heater built behind wall..... *459
Unit heaters in Electric Auto Lite Co.. *460
Unit heater in plant..... *457
Unit heater installation in Laundry Machinery Co. *458
HOISTS AND HOISTING
Electric hoists did it. E. W. Johnston.. *374
½ ton electric hoist..... *464
One-ton hoists on jib cranes in railway shop *408
Railway shop uses hoists for heavy machinery *406
Reverse-phase relays not needed for hoists 614
Hoists and Hoisting, see also Materials handling.

I

Industrial Engineering:
Historical summary (ed) 14
INDUSTRIAL ENGINEERING'S DATA SHEETS
Crane inspection report 114
Fabricated multi-piece pipe bends..... 162
Forms for periodic inspection to avoid fire hazards 267
How to find length of slope of roof when pitch and base are known.... 113
Lubrication of ball and roller bearings 331
Power-factor problems solved by scale.. 223
Two methods of finding angle of pipe intersection 161
Industrial Equipment Exposition:
Five classifications in exposition..... 13

L

LABOR
Awards for achievement in industry.... 89
Bonus for maintenance work. G. H. Gunn 1415
How control non-productive costs? H. W. Benton 569
Industry takes up the matter of pensions (ed) 14
Inland steel mechanical maintenance. B. S. Burrell *279
Jobs for "Assistant Executives"..... 95

*Indicates illustrated articles; ed, editorial

Maintenance by schedule and budget. C. H. Brechner *556
Premium system of pay 497
"Substituting instructions for reprimands," discussion. P. Justus 75
They wanted a better washroom (ed) .. 125
Try putting your job on paper (ed) 183
We suggest rewards for suggestion (ed) 15
Lathes:
Method of demagnetizing bed of large engine lathe 91
Lightning:
Lightning protection for industrial substations. H. M. Towne *421
Protection for industrial substations. H. M. Towne *285
Sons of Ajax go afield (ed) 430

LIGHTS AND LIGHTING

Inadequate wiring boosts light bills. R. A. Palmer *499
Layout reduces lighting bill 30 per cent. R. B. Weiler *604
Let there be enough light (ed) 95
Let there be enough light *126
Lighting the way to fewer accidents. R. E. Simpson *81
Melting platinum new light standard .. 201
Middle-West acquires a lighting institute (ed) 243
Motor-car plant has good lighting *402
Plant lighting (Picture feature) *365
Saving pennies on lighting and losing dollars on production (ed) 243
Screw making needs light *404
Stroboglow makes moving objects appear motionless *241
What is the safe temperature for spray booth lamps? A. H. Nuckolls 122
Wire changes correct reflector trouble ... 192
Loading platform *459
Lock—one lock for four bench drawers ... *616
Locomotives:
Operating costs and performance records of a 40 ton industrial electric locomotive. E. B. Edwards *472

LUBRICATION

Automatic lubrication for 175-ton ladle crane *405
Automatic oiling applied to traveling crane *402
Ball and roller bearings-lubrication (Industrial Engineering's Data Sheet) ... 331
From oil can to sheepskin (ed) 603
Graphite used in bearings to improve operation 477
Let service dictate lubrication of cables. H. C. Charles 190
Lubricating systems — pressure types. F. H. Low *559, *611
Lubrication on different machines (Picture feature) *345
Method of heating oil pipe line., C. O. von Dannenberg, F. W. Paffen 200
Proper lubricant corrects bearing trouble 474
Who shall do the oiling? .. 86, 142, 197, 143

M

Machinery:
Eliminating noise in machinery. W. F. Schaphorst 191

MAINTENANCE

By schedule and budget. C. H. Brechner . *556
Do centralized or decentralized stores better serve maintenance? 409
Do centralized or decentralized stores better serve maintenance? 453
During the next three months maintenance work will be important (ed) 14
Efficient inspection is worth many times its cost 127
Electrical maintenance engineer — plant physician. R. H. Rogers 428
How big is maintenance? 235, 296, 629
How can sweating of outside walls be eliminated? 479
How to develop key man for maintenance work 139, 194, 236, 519
How maintenance influenced oil terminal installation. M. C. Cockshott *176
How we are organized to service hoist cables. W. E. Rasmussen *306
If your buildings are not all they should be (ed) 115
Inland Steel mechanical maintenance. B. S. Burrell *279
Instructions for motor inspectors. Marin Phillips 311
Is there a good belt man in your organization? (ed) 182
Is there a national organization of maintenance engineers? (ed) 389
Keep the maintenance and production departments separate (ed) 289
Keeping maintenance abreast of production. H. R. Wentzell *232
Low crane maintenance, continuous operation—the result of triple inspection. W. D. Bristow *419
Maintain buildings systematically. Jos. S. Ruble 96
Maintenance and the premium. J. MacNiesh 132
Maintenance on premium (ed) 242
Maintenance engineer is the man of the hour (ed) 67
Manufacturers should be told of equipment failure (ed) 125
Mechanical causes of slip-ring troubles. S. S. Wolff *239
Modern conception of the maintenance function (ed) 388
New bearings for old. W. B. Moore ... *598
Operation. E. C. Brandt 167
Plant engineer looks at maintenance. C. H. White *252
Plant maintenance under divided authority. C. A. Ziebarth *72
Prepare now for cheaper production (ed) 68
Rehabilitate during slack times to secure low cost (ed) 125
Reinforcement for a favorite contention (ed) 466
Shall there be a national association of maintenance engineers? 571, 608
Should maintenance or production department control the operation of cranes, elevators and trucks? ... 193, 236, 298, 518, 576, 630
Signal to show the proper operation of motors. N. H. Case *191
We have to run fast (ed) 525
We know our maintenance costs and here's why. A. G. Wynkoop 619
What it costs to have a clean factory. H. C. Charles 248
What maintenance policy during depression? 452, 516, 573, 610
What they said about Maintenance at the management Congress 165
When equipment gets a vacation (ed) .. 602
Who shall do the cleaning? H. W. Benton 103
Maintenance, see also Plant engineering.

MATERIALS HANDLING

Auxiliary devices insure safe delivery of goods in materials handling systems. J. C. Siegesmund *87
Competitive production is ahead—look to the handling of materials (ed) 524
Co-ordination of handling equipment in the pork packing industry. A. W. DeVout *189
Designing for safety in materials handling. R. H. Hucke *186
Hoover Co. modernizes *334
How we are organized to service hoist cables. W. E. Rasmussen *306
Hydraulic method adopted for handling refuse sand. H. C. Charles 1418
Lifter for oil corporation *461
Metal sheets moved with equipment *463
Modern equipment at work (Picture feature) *351
Nash Motors Co. equipment *462
Progress during 1929 (Abstract of paper A.S.M.E.) *10
Western Electric developments at Kearny, N. J. C. K. Pevear *184
What does the materials-handling equipment manufacturer need to know to make a successful installation? N. H. Preble *187
Materials handling, see also Conveying and conveyors, Cranes, Elevators Hoists.
Melting pot, electric — unusual way of handling *148
Merchandising:
Do distributors serve industry economically? 295, 412, 453, 517
Mill supply associations adopt industry merchandising plan 263

MERGERS

Baldwin & Duckworth Chain merge 270
Brunswick-Kroschell, York Heating and ventilating and Carrier Engineering .. 635
Clark Controller acquires Sundh Electric Co. 540
Detroit Steel Products purchases Holorib 110
Dunham Co. purchases Dwyer Equipment Co. 105
Electric Products Co. acquires Rochester Electric Products Corp. 588
Federal Cement Tile acquires American Cement Tile 639
General Refractories acquires Evens & Howard refractories properties 109
Howell Electric Motors acquires Jeannin Electric 106
Reed, Midwest, and National Air Filter Companies unite 211
Southern Manganese becomes part of American Manganese Steel 317
Square D & Diamond Electrical merge .. 316
Trumbull Electric acquires Drendell Electric Mfg. Co. 635
Universal Bearing Metals and Bearium Bearings 65
Walker Vehicle, Barrett-Cravens and Automatic Transportation 62
Worthington acquires Gilman Mfg. Co .. 586
Metals:
Iron-Erie "Ermalite" cast-iron 64
Iron-Milne high-permeability 65
Meters:
Metering three-phase four-wire secondary systems *507
Polyphase power factor recorded by meter 468
Testing watt-hour meters. Nicholas Cook 309
Mica cut for commutator "V" ring *475
Mill, silk needs acres of light *401
Mill supply associations adopt industry merchandising plan 263

MODERNIZATION

Advantages apparent in 1930 (ed) 1
Advocating the stitch in time (ed) 467
Begins in the substation. H. E. Stafford . *577
Hoover Co. modernizes *334
Key word for 1930 business. Fred M. Feiker 9
Modern equipment at work (Picture feature) 401, 457
Packard changes to A.C. without production loss. R. R. Rees *347
Selling the idea of modernization to 27,000 industrial plants (ed) 288
Special issue, July.
Tip for industrial gamblers (ed) 602
We made sure it was modern (U. S. Gypsum Plant). Carl Hussman *361
We repeat—modernize, rehabilitate, now (ed) 430
Motor winding, see Electricity.

MOTORS

Back-torque operation of slipring hoist motor 480
Built-in motor protection. G. R. Anderson *545, *605
Causes of unequal current division among brushes. W. E. Warner 1418
Changing motors from two-phase to three-phase. A. C. Roe *149, 206
Changing 30 cycle motor for 60 cycle .. 133
Discussion of types of motors for cranes and elevators. H. H. Vernon *76
Effect of low voltage on D.C. motors .. 506
Effect of starting 500-hp. motor across the line 97
Emergency repair. W. T. Claytor *303
Explosion-proof motors to pump naphtha. *408
Feed control in bulk handling. G. R. Best *595
Hard soldering rotors with a low-temperature flame. W. O. Hurlburt . 191
How to choose the A.C. motor for specific application. R. H. Wright *291
Improvised growler serves a variety of purposes 615
Instructions for motor inspectors. Marin Phillips 311
Is back-torque operation of slipring hoist motor harmful? R. F. Emerson, J. G. Craft 247
Method of stripping stators and armatures 123
Motors and controls (Picture features) . *381
Motor and super-calender on same side of gear unit *460
125-hp. motors used in shaper company *462
Outdoor motor driving induced-draft fan *405
Packard changes to A.C. without production loss. R. R. Rees *347
Placing primary and secondary circuits for motor in one circuit 565
Reversed interpoles cause of trouble with compound motor. C. A. Peterson ... *192
Signal to show the proper operation of motors. N. H. Case *191
Starters and motors. A. A. A. Rodriques . *510
Step-by-step method locates source of vibration. A. L. Harvey 256
Suitable protection keeps motors on the line. B. W. Jones *179
Synchronous motors for heavy drives. E. G. Peterson *128
300-hp. paper machine *460
To drive these hydraulic pumps — one motor or six? J. G. Fletcher *502
Top-to-top connection causes heating of motor 133
Trouble in connecting motor for two-speed operation. A. C. Roe *199
Two-speed control for bandsaw motors. *616
Using wattmeter to measure reactive Kva. 98
Variable-speed control of synchronous and induction motors *465
Vertical drive motors in silk mill *465
Voltage changes in motors and generators. A. C. Roe 427
What causes poor starting of this motor? 565
Will a larger motor be needed on this job? R. P. Guildford 200
Wiring tables (Industrial Engineer's data sheets) 443, 493, 543, 593, 631

N

Naphtha stored safely. R. A. Althaus ... 310
National Industrial Equipment Exposition:
Elimination of waste awards 90
National Industrial Exposition:
List of exhibitors 163
National Management Congress:
First congress *184
Meeting 163
Program 90
Noise eliminated in machinery. W. F. Schaphorst 191

O

Oil:
How maintenance influenced oil terminal installation. M. C. Cockshott *176
What is wrong in this fuel oil system? .. 98

*Indicates illustrated articles; ed, editorial

P

PAINTS AND PAINTING

Beware the cheap paint job (ed)..... 125
Paint up (Picture feature) *385
Paint and putty for damp location..... 133
Paint and putty for damp location. H. D. Fisher, J. W. Curran, C. A. Gibbs, C. A. Wagner 246
What is the safe temperature for spray booth lamps? A. H. Nuckolls..... 122
Pillow blocks—emergency blocks made with welding torch *91

PIPES AND PIPE LINES

Another use for standard pipe fittings..*244
Fabricated multi-piece pipe bends (Industrial Engineering's Data Sheets).. 162
Quick freezing of pipes for emergency repairs 615
Two methods of finding angle of pipe intersection (Industrial Engineering's Data Sheets) 161
Using rubber hose in place of conduit.. 97

PLANT ENGINEERING

Do centralized or decentralized stores better service maintenance? 409, 453
Do not mistake a system for an organization (ed) 124
Economical combination water system. O. P. Willms *509
Electrical maintenance engineer — plant physician. R. H. Rogers 428
Location of machinery should be decided by production department. G. A. Holmes 104
Look ahead for plant engineering (ed). 182
Maintenance by schedule and budget. C. H. Brechner *556
New Building? let the plant engineer help design it. Wm. E. Camp.....*116
One plant engineer's duties 504
Organized plant engineering. Vaksdal & Romig *495
Organization. R. R. Rees 165
Plant engineer looks at maintenance. C. H. White *252
Steel-plate floor assembled by welding..*471
Talk it over with your friend and fire chief (ed) 288
To prevent fire loss—don't have the fire. W. A. Coulter *397
Walker Vehicle Co. (Picture feature).. 548
What kind of glass for the plant? (ed). 182
What maintenance policy during depression? 452
What they said about Maintenance at the Management Congress 167
Who shall specify equipment?..... 515
Your window glass. H. S. Jacoby....*225
Plant engineering, see also Maintenance.

PLANT HOUSEKEEPING

Good housekeeping—an investment (ed). 243
Modern equipment at work (Picture feature) *371
Reception room (ed) 525
Rubber pavements in industrial plants? H. W. Newman 469
Springtime calls for housecleaning (ed). 242
Walker Vehicle Co. (Picture feature)... 548
What it costs to have a clean factory. H. C. Charles..... 248
Who shall do the cleaning? 103

PLANTS

American Roller Mill Co. — Kentucky plant 290
Atwater Kent plant 424
Champion Coated Paper Co. 534
Cincinnati Milling Machine Co. 618
Conde Nast Company 470
Industrial Rayon Corp. plant 201
Kodak Park, Rochester 244
Praise we Norman Bel Geddes (ed)..... 431
Toledo Scale Co. to have modernistic plant *390
Walker Vehicle Co. (Picture feature)... 548
Windowless factory—Simonds Saw & Steel Co. 563
Power-factor problems solved by scale (Industrial Engineering's Data Sheets).. 223

POWER TRANSMISSION

Bearings—choosing and using them for power transmission. Wm. Staniar...*145
Belt drive *401
Belt drive operating foundry sand mixing mill *402
Clutch speed and power—discussion Wm. Staniar 96
Combining advantages of group and individual drives 133, 479
Compressor drives with belts of special construction *458
Correct distance between shaft centers.. 531
Distance between centers.....480, 564, 624
Electrical distribution at Point Breeze. Hornberger & Halliday *526
Group drive for screw machines *403
Hangers, ball-bearing *463
Mechanical power drives (Picture feature) *338
Mechanical power transmission during 1929. Wm. Staniar *6
Motors and multiple-V-belt drives for planers *464
On to Buffalo for the Iron and Steel show (ed) 288
Packard changes to A.C. without production loss. R. R. Rees *347
Pivoted motor base makes possible constant belt tension *458
Power drive analysis—conditions. Wm. Staniar *202, *249
Power lift does away with back-breaking effort. J. C. Siegesmund *190
Practical solutions of difficult drive problem. Wm. Staniar *300
Roller chain to drive shaft for cotton gin *405
Roller chain uses to take power from one motor for two line shafts *407
Synchronous motors for heavy drives. E. G. Peterson *128
To drive these hydraulic pumps—one motor or six? J. G. Fletcher.....*502
Uneven clutch surface reduced transmitting power. W. E. Warner 303
Variable speed transmission for paper-box cutting and printing machine...*404
Variable speed transmission, roller chain and friction brake *463
V-belt drives—their application and selection. W. H. Stephens *445
We made sure it was modern (U. S. Gypsum Plant). Carl Hussman.....*361
Production:
Keeping maintenance abreast of production. H. R. Wentzell *232
Prepare now for cheaper production (ed) 68
Pulleys:
Location of idler pulleys. C. A. Peterson, R. C. Moore 200
Location of idler pulleys 506
Pumps:
Drainage siphon made from pipe fittings. C. A. Peterson *305
Steel pump rods act like rubber bands.. 266
To drive these hydraulic pumps—one motor or six? J. G. Fletcher.....*502
Purchasing:
High price—low price? (ed)..... 243
Make them quote final figures first (ed) 289

R

Repair shops:
Worthy institutions, these electric repair shops (ed) 183
Research:
New nursery of progress (ed)..... 431
Rivets—using paper clips to hold rivets in place *131
Roofs and roofing;
How to find length of slope of roof when pitch and base are known (Industrial Engineering's Data Sheets) 113
Rope:
Determining safe loads for ropes, cables, and chains. H. C. Charles 130
Rotors, see Electricity.
Rubber:
Electro-deposition process widens use... 468
Pavements of rubber in plants? H. W. Newman 469

S

Safety, see Accidents and accident prevention.
Salvage, see Waste.
Scales:
Centennial of weighing n170
Shears:
Capacity of shears reduced by wrong direction of rotation. J. F. Wisinski... 144
Shops:
Here's to the quiet shop. F. H. Low... 93
Signals:
Inexpensive signal to show the proper operation of motors. N. H. Case....*191
Slip-ring troubles. S. S. Wolff.....*239
Soldering:
Hard soldering rotors with a low-temperature flame. W. O. Hurlburt 191
What price solder? Chas D. Elliott (tables) 120
Speed reducer driving house lofter.....*462
Standardization:
Insulator tests and ratings approved... 614
Starters and motors. A. A. A. Rodriques..*510
Steam:
Air injection of low-pressure steam.... 144
Steel:
Finding area of irregular sections.....*123
Industry scores another bull's eye (ed). 554
Inland steel mechanical maintenance. B. S. Burrell *279
Testing sheet steel for weldability..... 308
Stock:
Do centralized or decentralized stores better serve maintenance?.....409, 453
Storerooms:
Another use for standard pipe fittings..*244
Do centralized or decentralized stores better service maintenance?..517, 574, 629
Welded structure containing seventy-two bins *80
Stroboglow makes moving objects appear motionless *241
Stuffing box—for motor drive through fire-wall. M. C. Cockshott *258
Substations:
Lighting protection for industrial substations. H. M. Towne...*285, *421, *285
Modernization begins in the substation. H. E. Stafford *577
Switches:
Guarding the switchboards about the plant. H. C. Charles 258
Method of providing distant control of large switch. C. O. Von Dannenberg.*131

T

Temple gun—penetrates by percussion....*530
Tractors:
Gasoline tractor used for 20 ft. tubing..*403
Transformers:
National Fire Protection's Ruling..... 614
Rewinding transformer for use in thawing pipes 133
Trucks:
Factory uses large number of trucks....*407
Lift truck, lift truck platform and stacker *459

U

United States Bureau of Standards:
Melting platinum new light standard.... 201

V

Vacuum tube:
G. A. Van Brunt *172
Goes to work in industry (ed) 124
Valves:
Emergency repair for globe valve. W. T. Claytor, Jr. *144

VENTILATION

Air conditioning (Picture feature).....*358
Air conditioning for cigar factory.....*406
Blower system installation 474
Controlled air at work. D. Lloyd.....*532
Cooling and drying room *256
Dust elimination. D. Lloyd *532
Exports indicate wider acceptance for mechanical ventilation (ed) 15
Removing vapors from pulp mill grinder room. H. E. Stafford 304
Vibration, see Motors.

W

Washing machine—for cleaning metal parts. C. C. Hermann *256

WASTE

Preventing escape of valuable material from dust collectors 133
Refuse sand handled by hydraulic method. H. C. Charles 1 418
Salvage days promote shop betterment.. 424
Who shall do the salvaging?.....196, 299, 85, 238, 141, 86
Water system:
Economical combination water system. O. P. Willms *509
Weighing:
One hundred years of weighing (ed)... 183

WELDING

Adds life to large crank shafts.....*474
Contest announced 618
Foundation anchor bolts with torch.... 123
How about your regulators?..... 266
Increasing speed of spot-welding operation 505
Open oxygen cylinder valves carefully.. 181
Steel-plate floor assembled by welding..*471
Testing sheet steel for weldability..... 308
Welded structure containing seventy-two bins *80
Who shall do the welding?.....86, 143
Westinghouse Electric & Mfg. Co. — organizer supply system 105
Westinghouse memorial *508
Westinghouse's memory (ed) 554
Winches:
Portable for moving heavy machinery.. *91
Windings, see Electricity.
Wiring:
Motor wiring tables (Industrial Engineering's Data Sheets).....443, 493, 543, 593, 631
Spring—equipped dead end prevents trolley wire damage *615
Wire changes correct reflector trouble.. 192
Wood:
Flame—proofed wood tested 424
What preservative to protect wood from decay? 425
Wood that won't burn 127

*Indicates illustrated articles; ed, editorial

AUTHORS' INDEX

A

Althaus, Robert A. Storing and distributing naptha—safely 310
Anderson, G. R. Build-in motor protection *545, *605
Auburn, B. J. Control boards for industrial service *566

B

Bennett, H. Should maintenance or production department control cranes, elevators, and trucks? 236
Benton, Harry W. How control non-productive costs? 569
Should maintenance or production department control cranes, elevators and trucks? 630
Who shall do the cleaning? 103
Berger, J. G. 1929 electrical developments *2
Best, G. R. Feed control in bulk handling. *595
Brandt, E. C. Operation (Nat'l Management Congress) 167
Brechner, C. H. Maintenance by schedule and budget *556
Bristow, W. D. Low crane maintenance, continuous operation — the result of triple inspection *419
Who shall do the oiling? 86
Burrell, Benj. S. Inland steel mechanical maintenance *279

C

Camp, Wm. E. New Building? Let the plant engineer help design it *116
Carter, Frederick W. Do centralized or decentralized stores better serve maintenance? 575
What maintenance policy during depression? 628
Case, N. H. Inexpensive signal to show the proper operation of motors 191
Charles, H. C. Determining safe loads for ropes, cables and chains 130
Guarding the switchboards about the plant 258
Hydraulic method adopted for handling refuse sand 418
Let service dictate lubrication of cables 190
Method of figuring materials for a concrete job 144
Salvage days promote shop betterment .. 424
What it costs to have a clean factory ... 248
Clayton, W. T., Jr. Emergency repair for globe valve *144
Emergency repair for motor starter *303
Cockshott, M. C. Do centralized or decentralized stores better serve maintenance? 574
Do distributors serve industry economically? 517
How maintenance influenced oil terminal installation *176
Stuffing boxes for motor drive through firewall *258
Cook, Nicholas. Testing watt-hour meters 309
Coulter, W. A. To prevent fire loss—don't have the fire *397
Craven, Arthur A. Calculating drum cables 303

D

Davies, Dermot A. Do centralized or decentralized stores better serve maintenance? 575
Davis, A. F. Arc welding adds life to large crank shafts *474
Detwiler, E. M. Shall there be a national association of maintenance engineers? 609
Who shall specify equipment? 572
DeVout, A. W. Co-ordination of handling equipment in the pork packing industry *189
Drake, Robert W. How shall equipment be purchased? 141
Durr, A. W. What maintenance policy during depression? 628

E

Edwards, E. B. Operating costs and performance records of a 40 ton industrial electric locomotive *472
Elliott, Chas D. What price solder? (Tables) 120
Emerson, Grady H. Electrical trouble traced to mechanical defect 303
Emergency use of porcelain tubes as crane trolley wire supports *123

F

Feiker, Frederick M. Modernization, key word for 1930 business 9
Ferguson, W. B. Should maintenance or production department control cranes, elevators, and trucks? 298
What maintenance policy during depression? 610
Fletcher, J. Gordon. To drive these hydraulic pumps—one motor or six? .. *502

G

Gergens, H. G. Using graphite in bearings to improve operation 304
Gunn, Geo. H. Bonus for maintenance work 415
Should maintenance or production department control cranes, elevators and trucks? 297

H

Hagen, Peter. Scale for unscalable drawings 80
Halliday, W. A. and R. G. Hornberger. Electrical distribution at Point Breeze. *526
Hamilton, K. D. Do distributors serve industry economically? 455
How develop key men for maintenance work? 519
How shall equipment be purchased? 195
Who shall do the salvaging? 299
Harvey, A. L. Step-by step method located source of vibration 256
Hayes, H. T. Method of demagnetizing bed of large engine lathe 91
Heisler, C. L. Electric furnaces with controllable atmospheres *136
Electric furnaces with controllable atmospheres *229
Herman, C. C. Why the heater failed to work *256
Holmes, G. A. Should the plant engineering department have the right to question orders? 104
Hoover, Herbert—Quotation from message to U. S. Chamber of Commerce 68
Hornberger, R. G. and W. A. Halliday. Electrical distribution at Point Breeze. *526
Housley, J. Elmer. Do centralized or decentralized stores better serve maintenance? 574
Shall there be a national association of maintenance engineers? 610
Who should do the salvaging? 195
Hucke, R. H. Designing for safety in materials handling *186
Hulburt, W. O. Hard soldering rotors with a low-temperature flame 191
How big is maintenance? 629
Hussman, Carl. We made sure it was modern (U. S. Gypsum Plant) *361
Hyde, Raymond K. Policing electrically .. *520

J

Jacoby, H. S. Your window glass *225
Johnston, E. W. Electric hoists did it *374
Jones, B. W. Suitable protection keeps motors on the line *179
Justus, P. "Substituting instructions for reprimands," discussion 75

K

Kaufman, Harry. Do distributors serve industry economically? 456
Shall there be a national association of maintenance engineers? 609
What maintenance policy during depression? 516
Who shall specify equipment? 572
Kincaid, J. P. Improvised gang-coil winding head saves winding time 257
Kirkbride, Charles E. Shall there be a national association of maintenance engineers? 608
Kirsch, J. L. Budgeting (Nat'l Management Congress) 164
Kramer, M. B. Do centralized or decentralized stores better serve maintenance? 574
Who shall do the salvaging? 141
Who shall specify equipment? 610

L

Lloyd, Dwight. Controlled air at work ... *532
Lord, Chester B. Penetration by percussion *530
Low, F. H. Here's to the quiet shop 93
Lubricating systems — pressure types *559, *611
Luers, G. A. Crane hook that increases safety in handling loads 190

M

McSwain, S. R. Unusual way of handling an electric melting pot *148
MacNiesh, J. Maintenance and the premium 132
Moore, W. B. New bearings for old *598
Morrissey, E. J. Commutator assembly under favorable conditions *625

N

Nelson, A. K. How shall equipment be purchased? 194
Newman, Harry W. Rubber pavements in industrial plants? 469
Nuckolls, A. H. What is the safe temperature for spray booth lamps? 122

O

Olney, Frank. Should maintenance or production department control cranes, elevators and trucks? 630

P

Palmer, Roy A. Inadequate wiring boosts light bills *499
Peterson, Charles A. Cut and try method used in paralleling three generators .. 257
Do centralized or decentralized stores better serve maintenance? 453
Drainage siphon made from pipe fittings. *305
Emergency pillow blocks made with welding torch *91
How big is maintenance? 630
Reversed interpoles cause of trouble with compound motor *192
This crane limit switch stops overhoisting 531
Weights provide safety for floor-controlled crane *417
What maintenance policy during depression? 574
Who shall do the salvaging? 85
Peterson, E. G. Synchronous motors for heavy drives *128
Peterson, M. Who shall do the oiling? ... 142
Pevear, C. K. Western Electric developments at Kearny, N. J. *184
Phillips, Marin. Do centralized or decentralized stores better serve maintenance? 517
Do distributors serve industry economically? 411
How big is maintenance? 296
How shall equipment be purchased? 195
Should maintenance or production department control cranes, elevators and trucks? 576
Who shall do the salvaging? 85
Preble, N. H. What does the materials-handling equipment manufacturer need to know to make a successful installation? *187

R

Rasmussen, William E. How we are organized to service hoist cables *306
Rees, R. R. Organization (Nat'l Management Congress) 165
Packard changes to A.C. without production loss *347
Reinhold, H. E. Proper lubricant corrects bearing trouble 474
Should maintenance or production department control cranes, elevators and trucks? 518

*Indicates illustrated articles; ed, editorial

Reiter, F. M. Electric heat—discussion... 96
Relyea, John. Blower system has dual uses—material handling and ventilation 474
Rodriques, A. A. A. Starters and motors.. *510
Roe, A. C. Changing motors from two phase to three phase *149, *206
Checking developed winding diagrams.. *260
Insulating materials used in winding and banding rotors *581
Modernizing old motor winding.....*92
Properly banded rotors *476
Voltage changes in motors and generators 427
Rogers, R. H. Electrical maintenance engineer—the plant physician 428
Romig, John W. & Alfred Vaksdal. Organized plant engineering *495

S

Schafer, C. How shall equipment be purchased? 237
Schaphorst, W. F. Eliminating noise in machinery 191
Measuring belt tension 134
What is the correct center distance?.... 531
Wood that won't burn..... 127
Schellinger, R. R. Who shall do the Do distributors serve industry economically? 412
What maintenance policy during depression? 516
Who shall specify equipment?..... 610
Scott, Wirt S. In one plant—64 applications of electric heat.....*413
In one plant—64 applications of electric heat *449
Shepperd, W. B. Comment of easy method of stripping stators and armatures.. 123
salvaging? 142
Schreiber, Thomas J. How shall equipment be purchased? 194
Schultz, H. L. Do distributors serve industry economically? 454
How develop key men for maintenance work? 237
How shall equipment be purchased?.... 140
Who shall do the welding?..... 86
Schwabe, C. W. Do centralized or decentralized stores better serve maintenance? 629
Siegesmund, J. C. Auxiliary devices insure safe delivery of goods on materials handling systems *87
Power lift does away with back-breaking effort 191
Simons, John P. Do distributors serve industry economically? 412
Simpson, R. E. Lighting the way to fewer accidents *81
Spooner, R. G. Who shall do the salvaging? 86
Stafford, H. E. Do centralized or decentralized stores better serve maintenance? 576
Do distributors serve industry economically? 453
How develop key men for maintenance work 519
How shall equipment be purchased..... 298
Modernization begins in the substation.. *577
Removing vapors from pulp mill grinder room *304
Who shall do the oiling?..... 197
Who shall do the salvaging?..... 238
Who shall do the welding?..... 143
Staniar, William. Bearings, choosing and using them for power transmission...*145
Clutch speed and power—discussion.... 96
Flexible couplings *100
Mechanical power transmission during 1929 ..... *6
Power drive analysis *249
Power drive analysis—conditions favorable *202
Practical solutions of difficult drive problems *300
Stephens, Merlyn F. How develop key men for maintenance work? 236
Who shall do the salvaging?..... 141
Stephens, Walter H. V-belt drives—their application and selection *445
Strauss, Alfred. Who shall do the salvaging? 196

T

Thomas, R. M. Method of anchoring bedplate bolts in concrete floor.....*417
Toomey, J. B. Bogies for belting buyers.. 617
Towne, H. M. Lightning protection for industrial substations *285, *421

V

Vaksdal, Alfred and J. W. Romig. Organized plant engineering *495
Van Brunt, G. A. Industry finds Aladdin's lamp—the vacuum tube *172
Vernon, H. H. "Intermittent service" requires the right motor..... *76
Von Dannenberg, C. O. Method of providing distant control of large switch...*131

W

Wagner, Carl A. One way to cut mica for a commutator "V" ring.....*475
Who shall specify equipment?..... 572
Warner, W. E. Causes of unequal current division among brushes 418
Uneven clutch surface reduced transmitting power 303
Weiler, Rudolph B. Layout reduces lighting bill 30 per cent *604
Wentzell, H. R. Keeping maintenance abreast of production *232
White, C. H. Plant engineer looks at maintenance *252
Whitehouse, Charles R. Do centralized or decentralized stores better serve maintenance? 453
Do distributors serve industry economically? 456
Shall there be a national association of maintenance engineers? 608
What maintenance policy during depression? 573
Willey, Charles H. How develop key men for maintenance work? 194
Should maintenance or production department control cranes, elevators and trucks? 630
Who shall do the oiling?..... 143
Willits, J. M. Using graphite in bearings to improve operation 477
Willms, O. P. Economical combination water system *509
Wisinski, J. F. Capacity of shears reduced by wrong direction of rotation.....*144
Witherspoon, T. C. Safety bar to prevent belt from running off pulley.....*148
Witzel, Earl R. Determining resistance and temperature rise of heavy conductors *305
Wolf, F. J. Do distributors serve industry economically? 454
Wolff, S. S. Mechanical causes of slipring troubles *239
Wrench that will not mar the work...*531
Wright, J. Walter. Do centralized or decentralized stores better serve maintenance? 453
Shall there be a national association of maintenance engineers? 610
What maintenance policy during depression? 516
Who shall specify equipment?..... 572
Wright, R. H. How to choose the A.C. motor for specific application.....*291
Wynkoop, A. G. We know our maintenance costs and here's why.....*619

Z

Ziebarth, C. A. Plant maintenance under divided authority *72

*Indicates illustrated articles; ed, editorial